

APPLICANT(S): SHOR, Joseph S. et al.

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### REMARKS

The present communication is intended to be fully responsive to all points of objection and/or rejection raised by the Examiner and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application is respectfully requested.

Applicants assert that the present invention is new, non-obvious and useful. Prompt consideration and allowance of the claims is respectfully requested.

### Status of Claims

Claims 1-12 are pending in the application. Claims 1-12 have been rejected. Claims 1 and 12 have been amended.

Applicants respectfully assert that the amendments to the claims and specification add no new matter and were made for clarification purposes only.

### CLAIM REJECTIONS

#### 35 U.S.C. § 102 Rejections

In the Office Action, the Examiner rejected claims 1-12 under 35 U.S.C. §102(b), as being anticipated by U.S. Pat. No. 6,157,242 to Fukui (the “Fukui reference”).

Amended claim 1 now recites in part “a second clock signal provided by a level shifter and having a second voltage swing greater than the first voltage swing..., wherein said level shifter is adapted to provide an output at one of several substantially predefined voltage levels”. Applicants wish to point out that, in contrast to the claimed charge pump, the Fukui reference discloses a second clock which is provided by a voltage booster. There are significant structural and functional distinctions between a level shifter and a voltage booster. Namely, a level shifter having predefined output levels while a voltage booster having a

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substantially continues (e.g. linear or quasi-linear) input to output function. Therefore, Applicants believe claim 1 is allowable over the Fukui reference. Applicants respectfully request the Examiner to withdraw his rejection of claim 1 and to allow the claim.

Claims 2 through 11 depend from claim 1, and Applicants believe claims 2 through 11 are now allowable by virtue of their dependence on allowable claim 1.

Claim 12 now recites in part "applying a comparatively greater voltage from a level shifter to a control capacitor in a successive stage, wherein said level shifter is adapted to provide an output at one of several substantially predefined voltage levels". For the same reasons stated above for claim 1, Applicants believe that claim 12 is allowable over the cited reference. Applicants respectfully request that the Examiner withdraw his rejection of claim 12 and allow the claim.

In view of the foregoing amendments and remarks, the pending claims are believed to be allowable. Their favorable reconsideration and allowance is respectfully requested.

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Should the Examiner have any question or comment as to the form, content or entry of this Amendment, the Examiner is requested to contact the undersigned at the telephone number below. Similarly, if there are any further issues yet to be resolved to advance the prosecution of this application to issue, the Examiner is requested to telephone the undersigned counsel.

Please charge any fees associated with this paper to deposit account No. 05-0649.

Respectfully submitted,



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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

In the Claims, the following changes were made:

1. (Thrice Amended) In a charge pump including a first set and a later set of stages, each stage comprising an input and an output, an injection capacitor and a control capacitor, an improvement comprising:
  - (a) a first clock signal having a first voltage swing, the first clock signal being applied to the energy injection capacitor of each of the stages; and
  - (b) a second clock signal provided by a level shifter and having a second voltage swing greater than the first voltage swing, the second clock signal being applied to the control capacitor of at least one of the stages within the later set of stages, wherein said level shifter is adapted to provide an output at one of several substantially predefined voltage levels.
  
12. (Thrice Amended) A method for overcoming increasing bulk effect in successive stages of a charge pump comprising;  
applying in a given stage an energizing voltage to an energy injection capacitor; and  
applying a comparatively greater voltage from a level shifter to a control capacitor in a successive stage, wherein said level shifter is adapted to provide an output at one of several substantially predefined voltage levels.